SECTION 08 88 53

SECURITY GLAZING

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\*\* NOTE TO SPECIFIER \*\* Impact Security LLC; retrofit door window storefront and curtainwall protection for forced entry and ballistic attack.
This section is based on the products of Impact Security LLC, which is located at:
400 Glover St.
Marietta, GA 30060
Toll Free Tel: 888-689-5502
Fax: 678-547-3138
Email: [request info (info@defenselite.com)](https://arcat.com/rfi?action=email&company=Impact%252BSecurity%252BLLC&message=RE%253A%2520Spec%2520Question%2520(08880dfl)%253A%2520&coid=52521&spec=08880dfl&rep=&fax=678-547-3138)
Web: <https://www.defenselite.com>
 [ [Click Here](https://arcat.com/company/impact-security-llc-52521) ] for additional information.
DefenseLite� Pro is a patented security overglaze system manufactured by Impact Security, LLC. This retrofit security shield and framing system is designed to mount onto the existing glazing, creating unmatched forced entry protection. DefenseLite Pro transforms windows, doors, storefronts, and curtainwall into impenetrable openings that are 250 times stronger than glass. DefenseLite Pro is NOT an applied security film, but rather a heavy gauge architectural grade polycarbonate and extruded framing system designed to keep intruders out. The surface of the polycarbonate is specially coated to protect against scratching, graffiti and other factors that may result in the degradation of the UV resistant polycarbonate material.
Impact Security patented "Moore Vent" moisture control system maintains system integrity by venting the newly created airspace with the interior building conditioned air. This climate specific engineered vented frame solution guarantees against condensation and moisture buildup providing for long-term system integrity.
Trained and certified DefenseLite dealers and installation teams are in every major city, to ensure ease of access throughout the US.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Safety and Security retrofit overglaze system for forced entry, blast mitigation, sound mitigation, windstorm mitigation, active shooter mitigation and energy efficiency.
			1. Doors, windows, aluminum framed storefront and building curtainwall.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 08 00 00 - Openings.
		2. Section 08 50 00 - Windows.
		3. Section 08 53 00 - Plastic Windows.
		4. Section 08 53 13 - Vinyl Windows.
		5. Section 08 83 13 - Mirrored Glass.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
			1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
			2. ASTM C509 - Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.
			3. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
			4. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
			5. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
			6. ASTM D732 - Standard Test Method for Shear Strength of Plastics by Punch Tool.
			7. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
			8. ASTM D1003 - Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
			9. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
			10. ASTM E283 - Standard Test Method for Rate and Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
			11. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Door by Uniform Static Air Pressure Difference.
			12. ASTM F588 - Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance.
			13. ASTM F1233 - Standard Test Method for Security Glazing Materials and Systems.
			14. ASTM F3561 - Standard Test Method for Forced-Entry-Resistance of Fenestration Systems After Simulated Active Shooter Attack.
		2. American Architectural Manufacturers Association (AAMA):
			1. AAMA/NWWDA 101/I.S.2 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.
			2. AAMA 607.1 - Voluntary Guide Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
			3. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum"
			4. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
		3. American National Standards Institute (ANSI):
			1. ANSI Z97.1 - Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
		4. Consumer Products Safety Council (CPSC):
			1. CPSC 16 CRF 1201 - Safety Standards for Glazing Materials.
		5. Florida Building Code (FBC):
			1. HVHZ - High Velocity Hurricane Zone Classification.
			2. Miami-Dade County.
		6. H.P. White Laboratory, Inc. (HPW):
			1. HPW-TP-0500.03 - Test Procedure for Transparent Materials for Use in Forced Entry or Containment Barriers.
		7. ICC Evaluation Services (ICC-ES):
			1. ICC-ES Evaluation Report ESR-2728.
		8. US Department of Defense (DoD):
			1. DoD, Unified Facilities Criteria (UFC) 4-010-01 - DoD Minimum Antiterrorism Standards.
		9. US State Department:
			1. SD-STD-01.01 - Certification Standard - Forced entry and Ballistic Resistance or Structural Systems.
		10. Underwriters Laboratories (UL):
			1. UL 94 - Flammability.
			2. UL 972 - Burglary Resisting Glazing Material.
			3. UL 746C - Suitability for Outdoor Use.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements Administrative Requirements.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
		2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of five years documented experience.
		2. Installer Qualifications: Company certified by Impact Security, LLC for installation of DefenseLite, BulletShield and RiotLite products.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity. Impact Security is the exclusive manufacturer for all products.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. The intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	4. WARRANTY

\*\* NOTE TO SPECIFIER \*\* An extended warranty is available. Contact the manufacturer for more detail.

* + 1. Manufacturer's Warranty: Manufacturer's two (2) year standard limited warranty for component parts and labor when installed by manufacturer certified installer.
			1. Overglaze Polycarbonate Shield Warranty: Seven (7) years.
			2. Extended Overglaze Polycarbonate Shield Warranty: Fifteen (15) years.
			3. Custom warranties available upon request from the Manufacturer.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Impact Security LLC, which is located at:
		400 Glover St.
		Marietta, GA 30060
		Toll Free Tel: 888-689-5502
		Fax: 678-547-3138
		Email: [request info (info@defenselite.com)](https://arcat.com/rfi?action=email&company=Impact%252BSecurity%252BLLC&message=RE%253A%2520Spec%2520Question%2520(08880dfl)%253A%2520&coid=52521&spec=08880dfl&rep=&fax=678-547-3138);Web: <https://www.defenselite.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00 - Product Requirements Product Requirements.
	1. PERFORMANCE REQUIREMENTS

\*\* NOTE TO SPECIFIER \*\* Delete performance standards not required.

* + 1. Forced-Entry-Resistance Performance: "DefenseLite Pro". Provide units identical to those tested for compliance with requirements indicated, and as follows:
			1. Tested for forced entry resistance according to HPW-TP-0500.03 or ASTM F1233 and 5AA1 Active Shooter, ASTM F3561, and ASTM F588 by a testing agency acceptable to authorities that have jurisdiction.
				1. ASTM F1233.

Class 1.4; Contraband.

Class 2.2; Body Passage.

* + - * 1. ASTM F3561.

Level 8.

* + - * 1. ASTM F588.

Type D, Grade 40.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. For Federal Government Work: Certified as complying with SD-STD-01.01 by US State Department, for forced entry resistance when tested by a qualified testing agency.

\*\* NOTE TO SPECIFIER \*\* Delete air infiltration option not required.

* + 1. Air Infiltration for Fixed Windows: Not more than 0.010 cfm/ft. (0.015 L/s per m) of crack length at an inward test pressure of 1.56 lbs/sq ft (75 Pa) when tested according to ASTM E283.
		2. Air Infiltration for Fixed Windows: Not more than 0.060 cfm/ft. (0.093 L/s per m) of crack length at an inward test pressure of 1.56 lbs/sq ft (75 Pa) when tested according to ASTM E283.

\*\* NOTE TO SPECIFIER \*\* Delete water penetration options not required.

* + 1. Water Penetration: No water penetration as defined in test method at an inward test pressure of 1.56 lbf/sq ft (75 Pa) when tested according to ASTM E331.
		2. Water Penetration: No water penetration as defined in test method at an inward test pressure of 2.86 lbf/sq ft (137 Pa) when tested according to ASTM E331.
		3. Water Penetration: No water penetration as defined in the test method at an inward test pressure of 6.24 lbf/sq ft (300 Pa) when tested according to ASTM E331.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete paragraphs not required.

* 1. RETROFIT OVER - GLAZE SYSTEMS
		1. Premium Forced Entry / Access Denial Retrofit System:
			1. Basis of Design: DefenseLite Pro as manufactured by Impact Security, LLC. A lightweight thermoformable sheet, polycarbonate security shield. It has a polished surface, is UV stabilized, transparent. It has high impact strength, dimensional stability, high temperature resistance, and high clarity.
				1. Patented, professionally installed retrofit security overglaze system (frame and polycarbonate shield).
				2. Performance Requirements:

Standards Compliance:

ANSI Z97.1.

CPSC 16 CFR 1201, Category I and Category II.

Florida Building Code, HVHZ Classified.

Miami-Dade County NOA 15-1014.01.

ICC-ES Evaluation Report ESR-2728.

UL 94.

UL 972.

UL 746C.

ASTM F588 Rating: Grade D40.

ASTM F3561 Rating: Level 8.2.

Light Transmission: Clear per ASTM D1003: 86 percent.

Tensile Strength, Yield per ASTM D638: 9000 psi (62,000 kPa).

Flexural Strength per ASTM D790: 13,500 psi (93,000 kPa).

Shear Strength, Yield per ASTM D732: 6000 psi (41,000 kPa).

Horizontal Burn, AEB per ASTM D635: Less than 1 inch (25 mm).

Ignition Temperature, Self per ASTM D1929: 1022 degrees F (550 degrees C).

* + - * 1. Glazing: UL listed multi-ply polycarbonate.
				2. Glazing Thickness: 0.375 inches (9.53 mm) AR Coated Polycarbonate.

\*\* NOTE TO SPECIFIER \*\* Delete sheet size option not required.

* + - * 1. Glazing Sheet Size: 100 x 128 inches (2540 x 3251 mm) maximum.
				2. Glazing Sheet Size: As indicated on the Drawings.
				3. The engineered mounting frame includes Impact Security patented "Moore Vent" condensation relief system consisting of the venting of the dead air space into the interior conditioned space. Venting by climate zone required.
				4. Frame and shield mounted to interior or exterior based on existing glazing conditions.
				5. Designed for retrofit onto curtainwall and other glazed openings.
	1. FABRICATION
		1. Shields and Hardware:
			1. Fabricate security and ballistic shields from pre-determined sheet sizes as manufactured.
			2. Cut and fabricate security panels and mounting frames and hardware to surveyed sizes.
			3. Apply sacrificial protective layers at factory and prior to shipment of completed product to maintain system integrity.
		2. Finish work neat and free from defects per ASTM and standards.
		3. Tolerances: Plus, or minus 1/16 inch (1.6 mm) for frame opening width, height, diagonal dimensions, and overall width and height, outside to outside.
	2. MATERIALS
		1. Extruded Aluminum: ASTM B221, 6063 alloy.
		2. Neoprene Glazing Gaskets:
			1. Interior Glazing gaskets closed cell cellular neoprene conforming to ASTM C509 Type II Option 1 with a 40-50 Shore A Durometer.
			2. Exterior Glazing gaskets solid neoprene conforming to ASTM C864 with a 65-75 Shore A Durometer.
		3. Weatherstripping: Entrance manufacturer's standard types to suit application.
		4. Fasteners: Stainless steel or corrosion resistant steel. Security fasteners only.
		5. Glazing Sealants and Adhesives:
			1. Dow 795 for exterior finish applications.
			2. Dow 795 or 3M IPA for interior finish applications.
			3. Dow 999-A for weather seal applications.

\*\* NOTE TO SPECIFIER \*\* Delete article or accessory options not required.

* 1. ACCESSORY COMPONENTS
		1. Finish Trim: Available in a broad range of anodized and painted finishes to make the system virtually invisible.
		2. Custom Powder Coat: As specified by owner.
		3. Aluminum Frame Standoffs: Designed to keep protected glass from breaking upon physical attack.
		4. Entombed Desiccant within Bottom Frame Member: Eliminates moisture to prevent fogging and moisture damage during installation of overglaze.
		5. DefenseLite Super Bond: Secures the system to existing glazing (proprietary fasteners, tapes, and structural caulk integrated system).
		6. Sacrificial, clear surface protective film on overglazed doors to remain post installation to protect shields.

\*\* NOTE TO SPECIFIER \*\* Branded graphics and vinyl film products can be applied over exterior surface of DefenseLite. Consult Impact Security LLC for further details and applications under consideration.

* + 1. Branded Graphics and Vinyl Film Products: Static cling and surface mounted.
	1. FINISHES

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required.

* + 1. Steel Finishes:
			1. Dress tool marks and surface imperfections to smooth surfaces.
			2. Clean and chemically treat steel surfaces.
			3. Manufacturer's standard rust inhibiting gray primer paint.
			4. Manufacturer's standard polyester powder coat, sprayed and baked:
				1. PPG Duranar with resin containing 70 percent fluoropolymer; thermosetting; alternative finishes will not be acceptable, conforming to AAMA 2605.
				2. Pretreatment: Five-stage; zinc chromate conversion coating.
				3. Application: Electrostatic spray and oven bake by approved applicator.
				4. Coating quantity: Minimum one primer coat and one color coat.
				5. Dry film thickness: Minimum 1.2 mils (0.03 mm) on exposed surfaces, except inside corners and channels.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required.

* + - * 1. Color: \_\_\_\_\_.
				2. Color: To be selected by Architect from Manufacturer's full range.
				3. Color: Custom color.
		1. Stainless Steel Finish: No. 3 brushed finish.
		2. Aluminum Finishes:

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required.

* + - 1. Anodized Finish: AAMA 611, Architectural Class I anodized, clear.
			2. Anodized Finish: AAMA 611, Architectural Class I anodized, bronze.
			3. Anodized Finish: AAMA 611, Architectural Class I anodized, black.
			4. Anodized Finish: AAMA 611, Class II, Clear Anodic Finish: AA-M10C22A31 Mechanical Finish: As fabricated; Chemical Finish: Etched, Medium Matte; Anodic Coating: Architectural Class II, Clear Coating 0.40 mils (0.01 mm) minimum complying with the following:
				1. AAMA 607.1.
				2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.
			5. Powder Coat Finish: Manufacturer's standard polyester powder coat, sprayed and baked:
				1. PPG Duranar with resin containing 70 percent fluoropolymer; thermosetting; alternative finishes will not be acceptable, conforming to AAMA 2605.
				2. Pretreatment: Five-stage; zinc chromate conversion coating.
				3. Application: Electrostatic spray and oven bake by approved applicator.
				4. Coating quantity: Minimum one primer coat and one color coat.
				5. Dry film thickness: Minimum 1.2 mils (0.03 mm) on exposed surfaces, except inside corners and channels.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required.

* + - * 1. Color: \_\_\_\_\_.
				2. Color: To be selected by Architect from Manufacturer's full range.
				3. Color: Custom color.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until the substrates have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION

\*\* NOTE TO SPECIFIER \*\* Trained and certified DefenseLite dealers and installation teams are available in every major city across the United States, ensuring nationwide accessibility. Specifiers can rely on ease of access nationwide.

* + 1. Impact Security Factory Trained Certified Dealers Only.
		2. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
		3. Install plumb, level, square, true to line, and without warp or rack.
		4. Provide all fasteners required for installation.
		5. Anchor frames securely in place to support. Use attachment methods permitting adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
		6. Joint Sealants: Install joint sealants as specified in Section 07 21 19 - Foamed-In-Place Insulation Foamed-In-Place Insulation.
		7. Adjust door equipment for correct function and smooth operation. Verify water and weather tight installation as applicable.
	1. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
		2. DefenseLite Pro products is to be installed in an environment that is free and clear of heavy air particulate contamination.
	1. CLEANING AND PROTECTION
		1. Clean products in accordance with the Manufacturer's recommendations.
		2. Remove excess joint sealant in accordance with sealant Manufacturer's instructions.
		3. Do not use harsh cleaning materials or methods that would damage glazing or finish.
		4. Protect installed products until completion of project.
		5. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION